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Localisation Challenges in Usability and Customer Relationship Management of E-Commerce Environments

Shailey Minocha, Pat Hall and Liisa Dawson

Department of Computing, The Open University, Walton Hall, Milton Keynes
MK7 6AA, UK

S.Minocha / P.A.V.Hall / L.H.Dawson@open.ac.uk

Abstract: With growing competition in the global E-Market place, the focus of E-Businesses is moving from *customer acquisition* to *customer retention*. Towards this, E-Businesses, in addition to providing a *usable* site, are integrating Customer-relationship Management (CRM) strategies into the design and usability of E-Commerce environments. These CRM strategies include personalisation, providing consistent customer service across different communication channels of the E-Business, meeting customers' expectations with regards to product information, giving cues for trustworthiness (e.g. security seals, data protection assurances), etc. However, CRM strategies employed in American and West European market places are aimed at an individual's (customer's) self-interest and self-gratification and these might not be applicable in other cultures, for example, in Asia where, loyalty to family and clan, filial piety, delayed gratification, and connections and networks of trust and obligations via relatives and extended family, are valued.

Through several examples, this position paper highlights the challenges that E-Businesses face in the global marketplace of *localising* not only the user interface design issues of the E-Commerce Web site such as colours, language, currency formats, etc., or the cultural attractors such as religious iconography, beliefs, national symbols, and so on, but also the CRM strategies of the E-Commerce environment.

The issues, therefore, for discussion in the workshop arising from this paper are as follows:

- Significance of integrating both HCI / Usability and CRM strategies into the design and usability of E-Commerce environments for customer retention and loyalty;
- *Localisation* of CRM strategies in E-Commerce environments;
- Are the usability and CRM strategies genre-specific, that is, specific to a particular domain of E-Commerce, such as banking, shopping, travel, and so on;
- Which elicitation and usability evaluation techniques can be applied by designers and usability professionals in order to elicit values, attitudes, and expectations towards CRM of local customers?
- Are patterns of on-line purchasing becoming standardised (as more and more Web retailers follow Amazon's retail processing business model)? Are people learning to lead two different lives: responding to such standardised E-Commerce environments as well as to localised interfaces that meet their local preferences and requirements?

Keywords: Cross-cultural Usability, Human-Computer Interaction, Customer Relationship Management (CRM), Localisation, Customer Loyalty

1 Introduction

An *E-Commerce environment* implies not only the front-end of the E-Commerce, which is the Web-based retail site, but also the back-office systems such as the security of credit card handling, delivery

of products / services, post-sales support and contact with customer services.

In the Human-Computer Interaction (HCI) literature, research in the usability of E-Commerce environments has largely been concerned with identifying heuristics or guidelines for designing usable E-Commerce Web sites in terms of their user

interface design and effective user-system interaction (e.g., Nielsen et al. 2001, Spool et al. 1999, Vividence 2002). Design criteria such as quick and accurate downloading of Web pages, attractive Web pages which communicate clear messages, ease of user's navigation, and intuitive and easy interaction have been the focal aims of organisations to create usable customer-focused (B2C) E-Commerce sites. However, E-Commerce sites that are usable only in one country cannot exploit the Internet's global reach. Many E-Businesses that trade internationally are failing to take the linguistic and cultural differences sufficiently into account (Becker & Mottay, 2001).

Software localization is the process by which computer applications, such as Web sites, are analysed and adapted to the requirements of other countries, making the software more usable for customers in those countries (Collins, 2002). Although translating Web site content is a major aspect of localisation, it also involves changing colour, graphics and structure. A growing body of research is now beginning to address the problems of designing 'localised' (B2C) E-Commerce sites that suit the cultural needs of local users. Marcus (2003) has discussed localisation attributes of Web sites such as address, date, calendar and time formats, or numeric or name formats. However, these efforts on formatting conventions have focused primarily on the *usability of the local site* and the Web site's visual appearance and interaction.

In our recent work on cross-cultural usability (Smith et al., 2001 & French et al., 2002), we audited local E-Finance sites of two emerging E-Markets – India and Taiwan, and developed a generic catalogue of *cultural attractors*, which when embedded into the design of E-Commerce sites will help to match the culture of the intended local audience. The catalogue of cultural attractors (French et al., 2002) consists of visual components of the Web sites such as colours and colour combinations, use of culturally specific symbols and iconography, linguistic cues, religious iconography and charity giving, and locally significant brand identities. Based on such a catalogue of cultural attractors or conventions, the designers and usability evaluators can develop guidelines for designing localised Web sites of specific cultures or countries.

However, with growing competition in the E-Marketplace, the focus of E-Businesses is moving from *customer acquisition* to *customer retention*. Harvard Business Research has shown that for every 5% reduction in customer defections, the profitability of the organisation can increase by as

much as 30% to 85%, depending upon the industry (Reichheld & Sasser, 1990) – a ratio estimated to be even higher on the Web (Reichheld & Scheffer, 2000).

In our on-going research programme in *Customer Relationship Management* (CRM) at the Open University (e.g. Dawson et al., 2003, Minocha et al., 2003), we have seen that customers are willing to do business with an E-Commerce environment only when they feel that they are receiving *value* in their exchange with the organisation. Therefore, in order to attract and retain customers, E-Businesses should integrate CRM strategies in the design and usability of E-Commerce sites to engender customer retention and loyalty.

CRM is a set of business strategies designed to add value to customer interactions by providing service quality that exceeds the customers' expectations (Minocha, 2000). These strategies include service quality dimensions such as trustworthiness, security and privacy of customer's information, customer services, personalisation, reliability, etc.

In this paper, we discuss how design of a localised E-Commerce environment involves incorporating culture-specific Web design features, cultural attractors, and CRM strategies into its design and development. We start by introducing the discipline of HCI, the concepts of user interface design, usability, and the user-centred design process of designing computer systems.

2 Designing Usable Systems

HCI, as a discipline, is the study of how humans interact with computers and their applications (Dix et al., 2003). HCI looks at the design of computer systems for nuclear reactors, chemical plants, Web sites, computer games – in fact all applications in which a human and computer need to work together – and tells us how to build user interfaces that are safe, efficient, easy and enjoyable to use (as well as functional!).

HCI is a broad subject covering all aspects of the way in which people interact with computers and so draws on many subjects, including computer science, psychology, engineering, artificial intelligence, philosophy, sociology, anthropology and graphic design, to be able to do this.

As computers become more a part of our everyday lives, and as we are expected to interact with them in ever more sophisticated ways, HCI is an increasingly important subject. It is now a part of almost all design tasks: from the design of a railway

ticket booking system to the design of the laser-scanning tills in supermarkets; from the design of our car's dashboard to the control panel of our microwave oven.

2.1 User Interface

To interact with a computer system, a user uses a *user interface* (or UI). The UI is that part of a computer system that helps us to accomplish tasks; it must take our commands and communicate information back to us.

Consider a microwave oven. It has a panel with a set of buttons by which the user can, for example, adjust the cooking time or set the heating level, as well as operate all the other functions that the microwave provides. All microwaves also have a display in order to communicate information back to the user, often a simple display of how much time remains, but sometimes also showing heating setting, and so on. This panel of buttons and display constitutes the UI of the microwave oven.

The UI of different types of computer systems are different because the ways in which we interact with the different types of computer system are different. The ways of interacting are, in turn, different because we wish to achieve different tasks using different types of computer system. For example, the interaction with a mobile phone will be by pressing buttons on the keypad and interpreting the data on its small display. With a Web site, interaction will be through a keyboard and a mouse, with the display being much larger.

The *user-system interaction* is two-way communication via the user interface of the system. In fact, it is the UI of *any computer system* that a user interacts with and knows about the system and so far he is able to accomplish his tasks while interacting with the UI, he does not need to know *what* is happening, or *how* it happens, beneath the UI.

Therefore, to the users, the UI *is* the system (Constantine & Lockwood, 1999). Depending on the design of the interface therefore, users of a computer system will determine the whole system to be usable. If the UI of the system is easy to learn and use and supports the users in the tasks they wish to undertake, the users will consider the system to be *usable*.

2.2 Usability

According to the Part 2 of the ISO 9241 standard, *usability* is defined as

'the extent to which a [system] can be used by specified users to achieve specified goals [or tasks] with *effectiveness*, *efficiency*, and *satisfaction* in a specified context of use'.

The definition characterises the usability of a system, but since for the users the UI *is* the system, the usability of a system refers to the usability of its UI. As per the definition of usability, the UI should be perceived usable by the *specified* users – that group of users for whom the system has been designed. A system designed to be highly usable by nuclear power plant operators need not be usable for the general public.

Next, what are the goals of the users? What are the users trying to do with the system - does it support what they want to do with it? The UI should support the users in their tasks.

In the definition, *effectiveness* refers to the goals or tasks being achieved accurately. *Efficiency* refers to the resources expended – not too many – to achieve the goal or task. *Satisfaction* refers to the comfort and acceptability of the computer system to its users (and to other people affected by its use).

Usability should not be confused with 'functionality'. Functionality is concerned with the functions and features of the system and has no bearing on whether users are able to use them or not. Increased functionality does not mean improved usability!

2.3 User-centred Design Process

There are several HCI design principles such as visibility, affordance, feedback, structure, simplicity, consistency and tolerance that guide the design of usable UIs and, hence, usable systems (Dix et al., 2003). Furthermore, the *user-centred design* approach to user interface design and development in HCI focuses on understanding users, their requirements and involving them in the process of design, development and evaluation of systems.

The ISO standard - ISO 13407-'*Human centred design process for interactive systems*' is a concise description of internationally-endorsed best practice in user-centred design. ISO 13407 provides guidance on achieving quality in use by incorporating user centred design activities throughout the life cycle of interactive computer-based systems. There are four user-centred design activities that need to start at the earliest stages of a project. These are to:

- understand and specify the context of use
- specify the user and organisational requirements
- produce design solutions

- evaluate designs against requirements.

The iterative nature of these activities is illustrated in *Figure 1*. The process involves iterating until the objectives are satisfied.

The sequence in which these are performed and the level of effort and detail that is appropriate varies depending on the design environment and the stage of the design process.

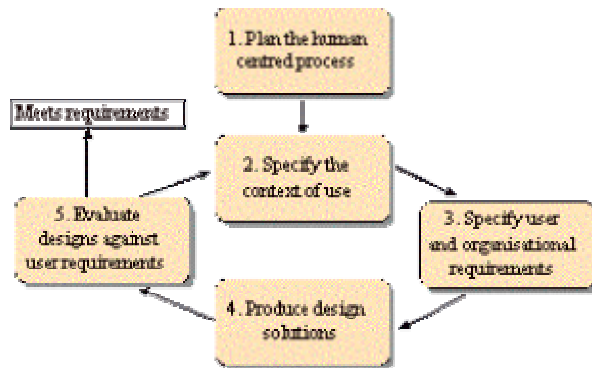


Figure 1 The interdependence of user-centred design activities

On applying the concepts of usability and ISO 13407 to the design of E-Commerce environments, it is clear that first and foremost it is important to understand who the customers are, and the *local contexts* in which the E-Commerce environments are used.

The importance of understanding the local cultural context and business practices has been highlighted by a recent study of the usage of Enterprise Resource Planning (ERP) system developed in Europe and used as an E-Business tool in several countries all over the world (Abelnour et al., 2003).

During the design of the ERP systems for individual global customers, little or no consideration is given to the cultural and local business practices, rendering it unsuitable for some local contexts and causing customer dissatisfaction. For example, an Indonesian customer complained about a function and requested for a change in one of the modules of the system: *“In E-Stock module we discovered that where entering Receipt the actual purchase prices can be seen on the screen. It is hard to accept considering that our operator [warehouse employee] does not have the right to know purchasing prices. This is not a simple issue for our company because security leaks in purchasing prices could cause serious impacts to our company. Therefore, we suggest that you consider changing*

the E-Stock module so that the purchasing prices will not be shown while entering Receipt.”

Another Indonesian customer had the same complaint – *“According to your local consultant it [price disclosure to warehouse employees] is common in Europe. If its so, I suppose it only applies there and definitely not in Asia environments...”* The fact that two different Indonesian companies had the same problem shows that in addition to understanding customers and their requirements, it is vital to understand the local cultures and the contexts of system usage: how do people use technology in their cultural settings and what are their expectations.

2.4 Customer-Interface of E-Commerce Environments

Users of E-Commerce environments interact with the *customer (or consumer) interface* of the E-Commerce sites to conduct transactions (Cole et al., 2000). The consumer interface is different from a conventional UI that focuses mainly on the task of conveying information in a cognitively efficient way, facilitating ease of use and ease of learning of the computer system. Conversely, a customer interface should contain elements that attract a visitor to stay and become a customer, and also return for repeat business.

The concept of usability and the HCI design principles of visibility, structure, simplicity, feedback, and so on are generic in nature and focus on the design of effective user-system interaction. Furthermore, E-Commerce-specific design guidelines also focus on the design characteristics of the Web site such as its navigation, structure, home page design and page layout. However, the design guidelines don't provide guidance for designing an E-Commerce environment for a *local audience*: how to design it for a particular culture and country.

With the ability of the Web to reach a global audience, many E-Businesses are attempting to expand their markets beyond their home countries. However, E-Business failures are increasing as customers turn away from unusable and unfriendly sites (Becker & Mottay, 2001).

A study of US organizations, performed by Becker & Mottay (2001), revealed that US-centricity was imposing Web usability (look and feel) from an American perspective onto localised Web sites. For example, the culture-specific icons may be inappropriate or confusing at a local level. Common examples are post box and shopping cart icons. Use

of particular colours, error messages or textual information may be misleading. The colour red means error or warning in the US although this isn't the case in Asian countries. Direct translation of English to a native language can result in unintuitive or confusing labels and instructions.

In pursuing a global market, organisations should be sensitive to cultural differences that impact on the usability of the customer-interface of E-Commerce environments. Marcus (2003) has discussed localisation attributes such as address, currency, date, calendar and time formats and numeric or name formats. However, the localisation efforts in design of user interfaces of Web sites and other computer systems, and E-Commerce design in the HCI literature have predominantly concentrated on the visual design and interaction of the customer (user)-interface.

Localisation of an E-Commerce environment, however, goes beyond the localisation of the visual design of the Web site.

2.5 Culturability: Merging of Usability and Culture

Barber & Badre (1998) refer to the concept of *culturability* – the merging of culture and usability such as that usability issues take on a cultural context: what is 'user-friendly' for one culture would be different for another culture. They argue that the success of a global interface may only be achievable when the UI design reflects the cultural nuances of the target audience.

Barber & Badre propose the concept of *cultural markers*: cultural elements prevalent or preferred within a particular cultural group should be identified and incorporated within the Web design. Examples of cultural markers are national symbols, colours, icons, fonts, metaphors and belief systems that contribute to the design and content of a Web page, and directly effect the way the user interacts with the interface.

We recently audited local E-Finance sites of India and Taiwan to identify the cultural markers or (we call them) *cultural attractors* (Smith et al., 2001 & French et al., 2002). Examples of such attractors are colours, icons, religious iconography, local conventions, beliefs, religious values, preferences, biases and the likes that are embedded in these sites, both deliberately and subconsciously (a Web designer might not be aware that his own cultural values and beliefs influence the design of the site). In the next section, we report some of the findings of our study of identifying cultural attractors in Indian E-Finance sites.

3 On-line banking in a local context

Here we will consider one of the Indian banks - ICICI Bank in India. ICICI is the second largest commercial bank in India, founded in India. It was the first Indian bank to offer wide-ranging financial services, beyond merely commercial banking activities, such as investment banking and insurance services.

Figure 2 shows the home page, which demonstrates the overall 'tone' of the site in the colours chosen:

red: associated with vitality, energy, prosperity and health; considered stimulating and showing ambition and initiative, brides wear red saris, guests dress in red in religious ceremonies and marriages.

saffron: considered auspicious amongst the Hindus, Sikhs, Jains and Buddhists, a militant colour signifying a fight against injustice among Sikhs.



Figure 2 ICICI Bank Home page
URL: <http://www.icicibank.com/> (accessed 19th September 2003)

Note the special category of customers in Figure 3–*Non resident Indians (NRIs)*. These are Indian citizens or non-resident foreign citizens of Indian origin who stay abroad for employment, business, government services etc. NRIs invest heavily in India. Since NRIs are important customers, all banks provide on-line facilities dedicated to their needs.



Figure 3 ICICI Bank - NRI Services

URL:

<http://www.icicibank.com/pfsuser/icicibank/ibank-nri/index.htm> (accessed 19th September 2003)

Giving to Charity is important in Indian society, and banks afford an opportunity to make donations. Amongst Hindus, it is common to donate money for philanthropic activities. Hinduism emphasises that if money is donated for good causes, the money will grow. Bricks and mortar banks offer this, and this is replicated on the Web site through the Donate2India service on the NRI site. This is shown in *Figure 4*. This page (not shown, needs scrolling) lists a number of charities to which the NRI may wish to make donations.



Figure 4 ICICI Bank - Charity Services for NRIs

URL:

<http://www.icicibank.com/pfuser/icicibank/ibank-nri/New-Donate/index.htm> (last accessed 19th September 2003)

Charitable services are also available to regular customers in India, through a set of services called ICICIcommunities, which enable donations and even enable people to sign up for volunteer work, as illustrated in *Figure 5*.



Figure 5 ICICI communities - On-line volunteering

URL:

<http://www.icicicommunities.org/communities/index.htm> (accessed 19th September 2003)

We have been tracking this Web site over a couple of years, seeing it slowly become less Indian, more internationalised. In early 2002 the NRI part of the site had a hypertext link “Munshi-Pardes” - ‘Munshi’ in Hindi means a family accountant, ‘Pardes’ is a Hindi means ‘abroad’, so Munshi-Pardes means having a family accountant abroad.

There was also a link to the page shown in *Figure 6*, enabling customers to make a puja online. Puja is a form of worship in Hinduism to seek blessings from God, particularly with his or her personal Hindu God or Goddess. Here offerings can be made to Lord Siddhivinayak (the God Ganesha), a god with an elephant head, worshipped in Northern and Western India.

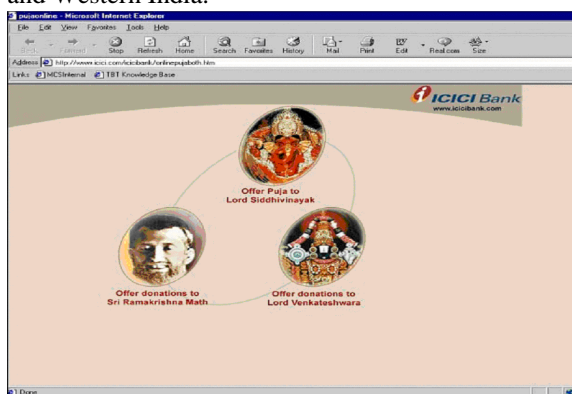


Figure 6 ICICI Bank – Former Charity and On-line Puja Services

URL:

<http://www.icici.com/icicibank/onlinepujaboth.htm> (accessed 13th February 2002)

Clearly taking a banking system created for other regions of the world and using it in India would have missed these additional cultural factors. The colour

scheme might have been changed in localisation, and with an increasing expectation in India for interfaces in local languages, even the text might have been translated into Hindi or other language, as done at some other banks. Local images, like Gandhi or the Taj Mahal might also have been introduced. But it would have needed a deep understanding of the relationship between a bank and the local community to have seen the other localisations required.

In India some, but by no means all, E-Banking sites include the facility for the visitor to give alms to one or more charities as may well be offered in a bricks and mortar bank. This facility may also be offered by ATMs in India. Web sites may even give the facility to offer prayers to favoured Hindu gods, just as a real bank may be associated with a shrine adjacent to the bank.

What we have seen illustrated here is that the respect for cultural attractors goes way beyond translation and a simple respect for number formats, currency, and dates, as attempted by Marcus (2003). We need to understand the social and cultural context within which the Web site will be used. Furthermore, an E-Commerce environment should have the *localised* CRM strategies integrated into its entire infrastructure: pre-purchase experience, transaction on the Web site, and post-purchase experience of distribution and customer services which is often unique to a specific country and to a specific culture.

4 Localisation and CRM

For a localised E-Commerce site, the requirement to integrate CRM strategies will have the following implications: first, the customers' perceptions to these service quality dimensions will vary from culture to culture; secondly, the visual appearance of the Web site or the cultural attractors corresponding to these service quality dimensions such as information content, cues for trustworthiness, security and privacy features, etc., will also be determined by the local culture.

According to Peppers & Rogers (2001), cultural differences impact on the CRM strategies to be used: the technology to be used for personalisation, how to identify the most valuable customers and how customers from different cultural backgrounds need to be treated differently. The perception of good customer service differs from country to country. *"CRM is not just about technology: it is also about leveraging local processes and culture – including addressing customers in a manner appropriate to each culture and sub-culture,"* said Don Smallwood,

senior director, E-Business Marketing (CRM), Oracle Asia Pacific (in Lei, 2002).

Let us consider a few examples which will illustrate the challenges being faced by E-Businesses in integrating CRM strategies in E-Commerce environments for a *local* culture, specifically in large Asian market places:

1. In Asia, where filial piety and close family bonds exist, offering family-oriented and broader incentives to customers that appeal to both men and women, young and the middle-aged, might be of greater interest to customers than offering *individualised* incentives to customers.
2. In Western countries, consumers were making purchases by phone and mail order long before the advent of E-Commerce, so on-line shopping comes naturally to them. Asians, on the other hand, generally still prefer traditional channels of person-to-person contact even when these channels may be less efficient. They don't have a history of buying remotely, and, therefore, might require more security assurances and cues of trustworthiness, to encourage them to shop on-line.
3. Then there are language preferences which are important to relationships between the business and the customer: Peppers and Rogers (2002) cite the example of Malaysian Chinese, who can speak Cantonese (a Chinese dialect) informally, speak Mandarin formally, and do business in Malay, but prefer legal documents in English. Such use of different languages can pose a problem for E-Businesses to relate to the customers in the most appropriate language.
4. Even identifying customers by name when providing personalised messages to customers, or when customer services address the customers, could be a problem: for example, Muslim names can be very long, and do not always have a surname. On the other hand, Chinese names start with a surname.
5. Peppers & Rogers (2001) also suggest that some jurisdictions allow for more than one marriage, resulting in wealthy male customers having several addresses. Sending financial data to the right address can be difficult in this case.
6. Recently, Chau et al. (2002) reported their findings of comparing behaviours of customers from the US and Hong Kong. Their aim was to understand how different cultures use the Internet and how do their requirements and expectations impact on the design of E-Commerce environments. In their study Hong

Kong subjects reported higher use of the Internet as a social communication device. On the other hand, the US subjects in their study reported that they tend to use the Internet more for product information search purposes. Thus, successful E-Commerce environments will be those that play to such cultural characteristics. For example, the E-Commerce sites targeted to US customers should have efficient information search facilities while providing Hong Kong Chinese customers a virtual community-like environment by providing online testimonials and links to related chat groups. In time-conscious environments such as the US, Chau et al. suggest avoidance of heavy graphics with long download times. Conversely, Asian cultures appear to prefer screens with animated graphics, video and audio.

In fact, cross-cultural differences are visible throughout a customer's interaction with an E-Commerce environment. The customer's first contact with the site may be influenced by cultural attractors and cues for security, trustworthiness and privacy on the home page of the Web site. Similarly when the customer encounters the critical fulfillment stage, payment mechanisms, mode of delivery, timeliness of delivery and expectations from customer services are all likely to be influenced by customer's cultural norms, off-line shopping experiences and legal guarantees in their local cultures and settings.

Thus, cultural factors are relevant and different across the CRM cycle of an E-Commerce environment – from the pre-transaction stage to the shopping and payment, and finally to the post-transaction stage. So far little research appears to have been done to explore the impact of cultural influences over all these stages of a customer's interaction with an E-Commerce environment, also known as the *service encounter* (Gabbott & Hogg, 1998). However, specific elements of CRM have been investigated from cross-cultural perspective such as initial trust perceptions (Jarvenpaa & Tractinsky, 1999) and content, payment and delivery aspects (Aoki, 2000).

5 Conclusions

The Internet has become more than a tool of communication and become the place to conduct global business. Organisations today cannot ignore the culture and social systems of different countries in which they are expanding.

In addition to adhering to generic HCI design principles and usability guidelines for the Web, E-Commerce environments need to be *localised*.

The localisation of an E-Commerce environment is not only language translation but local cultural markers or attractors should be embedded into the design of the Web sites. Furthermore, several examples in this paper have demonstrated that the customers' perceptions and requirements of service quality also differ from country to country because of the cultural differences between them. These differences have an impact on the choice and application of culture-specific and localised CRM strategies to be integrated into the design E-Commerce environments. An organisation, who is aware of such cultural differences at both usability and CRM levels, has a customer (user)-centred design process and meets the requirements of the local culture in its E-Commerce operations will thrive in the economy of the 21st century.

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